

Application No.: 10/087,198

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**REMARKS**

The Office action of June 20, 2003 and the references cited therein have been carefully studied. Reconsideration is respectfully requested.

The applicants' attorney and the inventor Dr. Kevin Q. Owen wish to thank the Examiner for the courtesies and considerations extended during the interview of September 10, 2003. The subject application has been amended in accordance with the understanding reached with the Examiner during the interview and in a subsequent telephone conference on October 3, 2003.

Specifically, as discussed with the Examiner at the recent telephone interview, the references to the articles identified via hyperlinks have been deleted from the specification. It should be noted, however, that printed copies of these references have been provided in the Information Disclosure Statement filed on May 8, 2002.

As agreed, the claims to the sow diets, namely, claims 7-12, and those to the feed supplement, namely, claims 13-15, have been canceled without prejudice. It is understood that applicants may pursue these claims in a subsequently filed divisional application.

Turning now to the Office action, it is respectfully submitted that the afore said amendment overcomes the objection to the specification. Furthermore, it is acknowledged with appreciation that the earlier rejection under 35 U.S.C. 102(a) has been overcome on the basis of the Declaration filed on 10 April 2003.

As will be recalled, in the Office action, the claims were rejected under 35 U.S.C. 103(a) on the basis of (1) the Arthington reference, (2) the Lindemann et al. and Kansas State University Research Foundation references set forth on page 3 of the Office action, and (3) Hagen et al. in view of Musser et al. on page 5 of the Office action. Applicants shall respond to these rejections briefly in the following paragraphs.

(1) With regard to the Arthington reference, in order not to overburden the record, reference is made to the discussion beginning in the last paragraph of page 3 through page 4 of the Response filed on April 10, 2003.

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In addition to the argument presented there, it should be pointed out that the growing and finishing pigs of concern to Arthrington can be distinguished from gestating and lactating sows by their weight. As Arthrington notes, growing pigs (generally weighing from 50 to 160 pounds) are in an energy dependent phase where high weight gain and muscle deposition are desirable and finishing pigs (generally weighing from 160 to 280 pounds) are in a phase where fat is desirably being added. Both of these phases are fed ad libitum as compared to a gestating sow that is limit fed. In contrast, gestating and lactating sows (generally weighing from 300 to 500 or 600 pounds) have totally different nutritional requirements and additional weight and fat, beyond that added by their normal diet, is disadvantageous. Research has documented there is a different amino acid requirement for milk production as compared to meat production. Accordingly, it is respectfully submitted that Arthrington does not make obvious the claims in the subject application.

(2) With respect to the Lindemann et al. and the Kansas State University references, as noted by the Examiner, these show the use of feeding of chromium and carnitine, respectively, to gestating and lactating sows, but not the two together. It is the Examiner's position that combining these two materials for the purpose of improving reproductive performance would be obvious unless synergy was shown, citing *In re Kirkhoven*, 625 F.2d 846. Applicants are in agreement with the Examiner's view on the law and, accordingly, during the interview, emphasized the synergistic effect of using carnitine and chromium in combination.

During the interview, it was emphasized by Dr. Owen that a most important factor in swine husbandry is the ability of the sow to conceive after the first and subsequent parities and that this was not shown in either of the references. More specifically, the Lindemann et al. abstract makes no reference whatever to the effect of chromium on farrowing rate. This study uses older sows and outdated genetics as evident from the low base line values for total born and number of pigs born alive. Also, it does not report wean to estrus, number of pigs per sow per year or total number of sows that started and finished per treatment (indication of sow longevity).

Similarly, the Kansas State University publication focuses primarily on the effect of carnitine on increasing the number of pigs in the litter, pig weights at birth and at the time of

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weaning, and the number of pigs born alive. Note page 1 of the publication, under the heading "Field of Invention." Again, there is no reference to farrowing rate. The specifics of his synergy and the effect of farrowing rate are discussed in the response submitted on 10 April 2003, beginning in the second full paragraph through the next-to-last paragraph on page . Note particularly the results reported in the last paragraph on page 7.

(3) The arguments in Section 2 above apply equally to the rejection over Hagen et al. in view of Musser et al. As above, Hagen et al. show the use of chromium alone, while Musser et al. teach the use of L-carnitine alone. Neither show the combination.

Hagen et al., like Lindemann, show chromium tripicolinate has a positive impact on sows bred by seven days post-weaning, the number of pigs born alive and weaned, and sow mortality. On page 60, under the heading "Results," in the second and third paragraphs, Hagen states that the sows fed chromium had a numerically (although insignificant) lower farrowing rate than control sows. Similarly, the third paragraph says that, after adjusting for PRE-S' - caused abortions, the farrowing rate was virtually identical in the two treatment groups. In addition, this reference does not show wean to first estrus interval, pigs weaned/mated sow/year or any difference in cull rate.

Musser et al., who show the positive effects of feeding L-carnitine alone, state "No differences were observed in subsequent days to estrus or farrowing rates" (see Abstract). The fourth paragraph under "Results," on page 3291 states: "Feeding added L-carnitine during gestation and(or) lactation had no effect on the subsequent days to estrus or farrowing rate." Furthermore, in this study the sows were only fed one parity and only reported a significant change in number of pigs born alive. There were no differences observed in farrowing rate or sow longevity. Accordingly, it is respectfully submitted that these references, in fact, make more striking the synergism shown in the applicants' invention.

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In light of the foregoing amendments and comments, it is respectfully submitted that the instant case is now in condition for allowance. A Notice to that effect will be greatly appreciated.

Dated: October 8, 2003

Respectfully submitted,

By

  
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